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10/505,381	08/20/2004	On Bon Peter Chan	MTUZ 2 00016	3788
7590 01/31/2007 James W McKee Fay Sharpe Fagan Minnich & McKee 1100 Superior Avenue 7th Floor Cleveland, OH 44114-2518			EXAMINER FIDLER, SHELBY LEE	
			ART UNIT	PAPER NUMBER
			2861	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.



## DETAILED ACTION

### *Election/Restrictions*

Applicant's election of Group I in the reply filed on 12/29/2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 6-12 and 15-21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

### *Drawings*

Figures 1-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 4, and 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Cook (US 6155664).

**Regarding claim 1:**

Cook discloses an intelligent ink cartridge (ink cartridge 8; Fig. 7) comprising:  
at least one ink chamber (ink reservoir 10) for storing ink therein (col. 5, lines 50-53);  
an electronics module (processor 35; Fig. 7) adapted to store identification information data of the ink cartridge (col. 7, lines 5-16) and ink remaining data (col. 10, line 63 – col. 11, line 4), wherein  
the electronics module is a CSIC micro-controller (35) with embedded non-volatile memory (EEPROM 15; col. 16, lines 49-52) storing a program executable to control access and processing of ink remaining data in the ink cartridge to improve the maximum of ink volume of the ink cartridge (col. 16, lines 52-60).

**Regarding claim 2:**

Cook also discloses that the non-volatile memory is an EEPROM (15; col. 16, lines 49-52).

**Regarding claim 4:**

Cook also discloses a microcontroller that includes:  
an ALU (microprocessor 35) connected with a data bus (inherent to TMP47E186M described in col. 16, lines 49-52), an EEPROM memory (EEPROM 15) for storing the identification information data of the ink cartridge (col. 7, lines 5-16) and the ink remaining data

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(col. 10, line 63 – col. 11, line 4), plural registers, an interrupt unit, a timer, an analog comparator, an I/O interface, and a program memory connected to the ALU by the register (these limitations are inherent to part TMP47E186M, as made evident by pages 53-55 of Toshiba's Microcomputer Product Guide) for storing a program controlling reading and writing operations and calculation of ink remaining data (col. 16, lines 49-65).

**Regarding claim 13:**

Cook discloses an electronics module (e.g. TMP47E186M; col. 16, lines 49-52) of an intelligent ink cartridge (col. 16, lines 45-52) for use with an associated ink jet printer apparatus, the electronics module storing identification information of the ink cartridge (col. 7, lines 5-16) and ink remaining data (col. 10, line 63 – col. 11, line 4), wherein, the electronics module is a micro-controller (col. 16, lines 49-52) with embedded non-volatile memory (EEPROM 15) storing a program executable to control access and process operations of the ink remaining data in the ink cartridge for improving the maximum ink capacity utilization of the ink cartridge (col. 16, lines 52-65).

**Regarding claim 14:**

Cook also discloses that the non-volatile memory (15) is the micro-controller stores the identification information of the ink cartridge (col. 9, lines 45-47) and the program for controlling access and process operations of ink remaining data is stored in a ROM memory (col. 16, lines 60-63), so as to meet the requirement of controlling and reading/writing ink remaining data by the ink jet apparatus when the program is carried out and ink capacity of the ink cartridge is improved (col. 16, lines 65-67).

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cook (US 6155664) in view of Wakabayashi et al. (US 5504669).

**Regarding claim 3:**

Cook discloses all claimed limitations except that the micro-controller is an 8-bit CMOS RISC microcontroller.

However, Wakabayashi et al. disclose a printer cartridge (cartridge 3; Fig. 3) with a CMOS microcontroller (CPU 71) with RISC architecture (col. 12, lines 14-17).

Therefore, at the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize an 8-bit CMOS RISC processor into Cook's invention. The motivation for doing so, as taught by Wakabayashi et al., is to provide a processor suitable for processing page description languages (col. 11, lines 14-25).

***Allowable Subject Matter***

Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 5 contains allowable subject matter since the prior art of record does not teach an ink cartridge comprising a R-C control circuit defining a preselected time constant value, used

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to distinguish a checking read cycle of the cartridge and a normal read cycle of the cartridge, wherein the R-C control circuit is connected to the input interface of the microcontroller in combination with other features and limitations of claim 5.

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*Communication with the USPTO*


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shelby Fidler whose telephone number is (571) 272-8455. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*Shelby 2. Fidler 1/24/2007*

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